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**LEPROSY :**  
**SUMMARY OF RECENT WORK.**

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## LEPROSY.

MITCHELL (J. Alexander). **Leprosy Administration.** [Government Circular.]—*S. African Med. Rec.* 1924. Nov. 22. Vol. 22. No. 22. pp. 529-531.

The South African Union Health Department has issued a statement of its policy with regard to leprosy administration. This includes a "Leprosy Survey" to determine the extent of the problem, no effective inquiry having been made since 1911, when 1,300 free cases were estimated in Transkei alone; an educative and publicity campaign, for removing prejudices due to erroneous beliefs that the disease is hereditary and highly infective through the air even to a distance, instead of being only slightly infectious after prolonged close contact; the appointment of a Leprosy Advisory Committee to include the prosecution of research work; the full use of the latest treatments; encouragement of voluntary isolation in the earliest stage; the discovery and segregation of all active infective cases; the appointment of a Leprosy Board, of both official and non-official medical men, to report periodically on all segregated lepers and to recommend the discharge of recovered and uninfected cases, 597 such cases having been already released subject to periodic clinical and bacteriological examinations; to authorize home segregation in suitable cases; gradually to convert Leper Institutions into "Leper Sanatoria" providing the best treatment for early voluntary cases, as with tuberculosis; and to secure the active co-operation of everyone concerned in combating the disease: all very excellent measures suitable for adoption elsewhere in leprosy-infected portions of our Empire, and based on the latest medical knowledge. Dr. J. A. Mitchell, Secretary for Public Health, is to be congratulated.

L. Rogers.

SOUTH AFRICAN MEDICAL RECORD. 1925. Feb. 14. Vol. 23. No. 3. pp. 51-52. **Leprosy Advisory Committee.**

This is a report of a meeting of the Leprosy Advisory Committee in December, 1924, at which the policy of the Department of Public Health dealt with in the preceding abstract was endorsed. The Government was asked to reduce, as far as possible, the heavy cost of institutional segregation, to spend some of the money saved on research, and to improve the treatment in the leper institutions, the excessive cost of the Robben Island colony being pointed out.

L. R.

ROBINEAU (Marcel). **La prophylaxie et le traitement de la lèpre chez les races primitives de l'Afrique Équatoriale.**—*Presse Méd.* 1925. Feb. 21. Vol. 33. No. 15. pp. 243-245. With 3 text figs. [3 refs.]

Dr. Robineau, an experienced French Colonial medical officer, deals with the difficult problem of prophylaxis against the widespread leprosy in tropical Africa, 52,000 lepers being estimated in a portion only of French Equatorial Africa. Any attempt at the collection and segregation of the lepers by force is rightly condemned as futile, the best plan being to send fairly early treated lepers in pairs through the villages to persuade other infected persons to come voluntarily



to the leper village to obtain the benefit of the improved treatments, and this plan has been found to yield good results. All new cases are confirmed bacteriologically before admission, for which purpose puncture of any enlarged glands and staining for acid fast bacilli is recommended in doubtful cases. All segregation must be voluntary, and no force ever used in collecting the patients, who must be attracted by the provision of free lodging and food, and land to cultivate towards their own support around the unenclosed leper villages, constructed according to the native plans, so that they feel at home. A hospital for helpless crippled cases, meeting-houses, schools and crèches for infants should be provided and religious freedom ensured. They should be classed in accordance with the clinical stages of the disease, with a special quarter for the infirm, and not according to social distinctions. Healthy infants of lepers should be nursed by healthy women, as artificial feeding is rarely practicable in the tropics, or goats' milk may be used, but negro women often object to giving up their infants unless they are placed in a neighbouring crèche, where their mothers can visit them once a week. Good hygiene and the best treatment should be provided, since leprosy is no longer to be regarded as incurable under persevering treatment. This is fully appreciated by the blacks and attracts them to the isolation villages, but a great field remains open for further research to perfect the methods of curing leprosy.

L. R.

ROBINEAU (M.). **La lutte antilépreuse dans une circonscription du Cameroun.**—*Revista Méd. de Angola.* (No. especial 1<sup>e</sup> Congresso de Med. Trop. da Africa Ocidental. Vol. 3. 3a, 4a e 5a Sessões.) 1923. Aug. No. 4. pp. 385–392.

This paper deals with similar material to one in the Transactions of the Strasbourg Leprosy Conference already dealt with in this *Bulletin*. It emphasizes the difficulty in segregating lepers in tropical Africa and the necessity of attracting them to come for treatment. Intramuscular injection of chaulmoogra esters is the best method, although very prolonged treatment and infinite patience is required to obtain good results.

L. R.

CORREIA (Germano). **A lepra em Angola.**—*Revista Méd. de Angola.* (No. especial 1<sup>e</sup> Congresso de Med. Trop. da Africa Ocidental. Vol. 3. 3a, 4a, e 5a Sessões.) 1923. Aug. No. 4. pp. 369–374. With 1 chart.

A brief paper showing that Angola is not an important centre of leprosy. Records are tabulated which demonstrate that there have been 30 deaths from this disease since 1873, of which 27 occurred in Loanda, 2 in Mossamedes and 1 in Benguela. No estimations of the actual number of cases is attempted.

H. Harold Scott.



GENEVRA Y (J.). **La lèpre en Nouvelle-Calédonie.**—*Bull. Soc. Path. Exot.* 1925. Jan. 14 & Feb. 11. Vol. 18. Nos. 1 & 2. pp. 78-89. pp. 158-177. With 6 figs. & 3 maps in text.

This paper gives a long account of leprosy in the French Australasian colony of New Caledonia, with a full history of the well-known outbreak there. It brings out the fact that the disease is now decreasing considerably, and accounts for it mainly by the originally almost solely nodular infectious type of cases having become altered to show a considerable proportion of the relatively little infective nerve type, especially in the islands first infected. Many of the European convicts became infected, but they have for some time been isolated, and their numbers have fallen from the highest point of 211 to 158 in 1924; the death of 1,113 lepers of all nationalities in the last 10 years has played an important part in their reduction. The attempts to isolate the lepers, first in numerous leper villages, then in one central island colony, which had to be abandoned on account of its cost, and again in villages without much supervision are narrated, and the comparative failure of the attempts yet made to deal with the disease is pointed out. The laws are excellent, but lack of funds prevents their being enforced, and the writer advocates the appointment of a special medical officer to inspect all the leper villages and to carry out the laws regarding the discovery and isolation of the infected. He is of the opinion that if this done, and with proper financial support, it will prove successful in reducing the disease far more rapidly than hitherto.

L. R.

DOUGLAS (A. R. J.). **A Visit to Culion Leper Colony, Philippine Islands.**—*Lancet.* 1925. Jan. 17 & 24. pp. 143-145. With 1 text fig; 201-204. With 1 text fig. [11 refs.]

This is a general account, with no claim to originality, of the well-known Culion Leper Colony, based on a visit paid to it last year. It covers familiar ground dealt with in papers by the Culion medical staff in papers recently reviewed in this *Bulletin*, and includes an illustration of a group of 225 "negative" lepers awaiting the completion of six months "negative period" before their release. This furnishes graphic evidence of the full use which is being made in this, the largest leper colony in the world, of the recent advances in our knowledge made by the splendid American and Filipino staff there.

L. R.

WOOD (Leonard); OLDRIEVE (Frank); DOUGLAS (A. R. J.); MCKEAN (James); BARTLETT (C. L.). **Leprosy Work at Culion.** [Correspondence.]—*Boston Med. & Surg. Jl.* 1925. Mar. 19. Vol. 192. No. 12. pp. 571-576.

The correspondence consists of letters forwarded for publication by General Leonard Wood, Governor of the Philippines, including reports made to him by visitors to the Culion Leper Settlement. The most important point is made by Mr. Oldrieve, when he urges the immediate necessity of providing homes for the untainted children of the lepers so as to put a stop to the numerous infections which have taken place among them ever since the colony was opened.

L. R.



PANAMA CANAL. **Report of the Health Department of the Panama Canal for the Calendar Year 1923.** [FISHER (H. C.).]—**Palo Seco Leper Colony.** [TUCKER (Frederick D.) & HORWITZ (Philip).] pp. 45-52. With 1 plate.

In January, 1923, 70 remained in this Colony, 14 were admitted during the year, 4 died, 6 were paroled, and 74 remained at the end of the year. Average duration of the disease at death was 10 years and of stay 5 years. Of the paroled cases the average duration was 6 years for males and 4 for females, and the stay  $4\frac{1}{2}$  years; 38 were West Indians, 35 Panamanians, 4 Colombians, 2 Chinese, 1 Haitian, and 1 Ecuadorian. Chaulmoogra esters were injected regularly and definitely arrested the progress of the disease in early and in fairly advanced stages, but progress often becomes slow after a time.

L. R.

PUPO (Aguiar). **A prophylaxia da lepra em S. Paulo. Defesa do "Leprosario de Santo Angelo."** **Moção ao Sr. Presidente do Estado.**—*Ann. Paulist. Med. e Cirurg.* 1924. Nov. Year 12. Vol. 15. No. 11. pp. 261-270. [1 ref.]

Leprosy was originally introduced into Brazil by Portuguese colonists, and during the last 30 years its spread has been great. In S. Paulo in 1916, when the first reliable estimations were made by RIBAS, there were 1,171 cases; in 1920, RIBEIRO found 4,115 cases, and estimated the total as not less than 4,500, or one per mille. At a Medical Congress in December, 1915, suggestions were made for compulsory notification, for isolation of poorer patients in leper colonies, and domiciliary treatment of others, for the care of families of indigent lepers, prompt separation of the children of leprous parents, prevention of immigration of lepers, notification of change of residence of those afflicted, disinfection of their houses, and so forth.

The second part of the paper deals with objections raised against the Santo Angelo leprosarium, mainly on account of its being situated near the capital and on the bank of the River Jundiahy, a tributary of the Tieté. These objections are stated to have no sound foundation.

H. Harold Scott.

ABEN-ATHAR (Jayme J.). **Considerações sobre a endemiologia e a prophylaxia da lepra.**—*Sciencia Medica.* 1924. Dec. 31. Vol. 2. No. 12. pp. 697-702.

By figures and returns from some of the chief districts of Brazil the author shows that leprosy is in the indigenous largely a disease of childhood and early adult life, so that, as in yellow fever and tuberculosis, repeated inoculations in early years set up a degree of immunity which protects adults of maturer years. Examination of the returns of patients infected later in life shows that the majority are immigrants. The question of prophylaxis is barely mentioned.

H. H. S.



PAZ SOLDAN (Carlos Enrique) & MONGE (Carlos). **La lepra en el Perú. Comunicación presentada a la Academia de Medicina.**—*Cronica Méd.* 1924. Nov. Vol. 41. No. 737. pp. 344-350. [6 refs.]

*A propos* the case of a woman, 25 years of age, suffering from leprosy and coming from Huallanca in the Department of Huáncó, the authors present a table taken from official records showing that in the hospitals of Lima during the nine years 1913-1921, inclusive, there have been 31 persons admitted for leprosy, of whom 5 have died. From investigations which they have made they conclude that leprosy is rare in Peru, the chief foci of the disease being the banks of the River Ucayali. Although the population there is small and scattered, the danger of spread must not be overlooked. The case recorded came from a district hitherto believed to be free from leprosy, and another noted by FRASER in Talara points to the possibility of a focus on the neighbouring frontier of Ecuador. Medical men are asked to help in determining the actual number of lepers in Peru.

H. H. S.

FORDYCE (John A.) & WISE (Fred). **Leprosy in New York City.**—*Arch. Dermat. & Syph.* 1925. Jan. Vol. 11. No. 1. pp. 1-48. With 40 text figs. [11 refs.]

This account of the occurrence of leprosy in New York is illustrated by an excellent series of photos of cases in various stages, mostly fairly early ones, and contains a table of 47 cases, aged from 7 to 55, 37 of whom were males; 29 were whites, 11 mulattoes, 6 Chinese and 1 a negro, but only three had been born in the United States, most of them having come from South America and the West Indies. The difficulty in recognizing the earliest stages, which are often concealed, is emphasized; the very varying incubation period, the frequent positive Wassermann reactions, and the contagiousness are discussed, the latter being definite but slight, and microscopical sections of skin and liver nodules are illustrated. The paper is a valuable one for those who only occasionally meet with the disease.

L. R.

MACLEOD (J. M. H.). **Contact Cases of Leprosy in the British Isles.**—*Brit. Med. Jl.* 1925. Jan. 17. pp. 107-108.

The writer reports three interesting cases: (1) A boy, aged 12, who had never been out of Ireland, developed nodular leprosy contracted from his father, a poor Russian who had emigrated there with advanced nodular leprosy; (2) a boy, aged 15, with nodular leprosy, who was born and had always lived in Lancashire, but whose elder brother returned from British Guiana with nodular leprosy in company with his uninfected parents. The younger child, born in England soon after his parents' return, had been in close association with his leprous brother "with whom he had slept for five years, and from whom he contracted the disease." Both boys died of leprosy; (3) a Belgian woman married in England a man suffering from nodular leprosy, with whom she lived without any precautions, and contracted the disease from him. [It is very suggestive that two, at least, of the patients slept in the same bed with a nodular leper for



some years before contracting the disease, as in the case of the former well known Dublin infection : an easily avoidable and quite unnecessary exposure.]

L. R.

SEYFARTH (C.). **Ein Besuch in der Leproserie "Spina longa" bei Kreta (Griechenland).** [A Visit to the "Spina Longa" Leprosery off Crete.]—*Deut. Med. Woch.* 1925. Apr. 17 & 24. Vol. 51. Nos. 16 & 17. pp. 665-666. With 10 text figs. & pp. 705-706. [5 refs.]

The author gives an interesting account of the leper colony established in 1904 at Spina Longa, an old ruined island-fortress off the coast of the larger island of the same name in the Bay of Mirabella, north-east Crete. It has now become the leper colony for the whole of Greece.

The lepers occupy themselves in housework, gardening, and the preparation of their food. Among the 210 are rather more men than women, mostly between the ages of 35 and 50. The youngest is a lad of 16, the youngest woman is 25. There are also a few older patients up to 70 or 75 years of age. The number always remains about 200-250. The average number of deaths each year is 30 and the number of fresh arrivals about the same. All the inhabitants of the island are lepers with the exception of four elderly wives who accompanied their leprous husbands voluntarily to the leper colony. None of them show any signs of leprosy. One case of infection, however, has occurred in one of the boatmen who bring over the raw foodstuffs daily from Plaka. After 8 years of such intercourse he developed leprous rhinitis at the age of 35, followed by nodular leprosy. Marriages between the lepers are not rare. The author was shown a 4 weeks old infant born of leprous parents. Since 1904, 12 others have been born on Spina Longa and survived. All are said to be quite healthy, and 9 of them have been transferred to an orphanage at Athens after living with their parents on Spina Longa from birth to various ages from 6 months to 10 years. Two others have been adopted by relatives.

All stages and forms of the disease were seen. The following are the proportions :—

Nodular leprosy...	...	...	...	about	30	patients.
Nerve leprosy	...	...	...	"	70	"
Mixed forms	...	...	...	"	100	"

The author draws attention to the almost unrivalled wealth of material on Spina Longa for the study of leprosy, and concludes with some proposals for the improvement of the colony, which he considers is very appropriately situated. When the island has been transformed into a worthy sanatorium for lepers it will be possible to carry out a systematic scheme for the control of leprosy in Greece and Crete. At the present time, unfortunately, the Greek Government is not in a position to make the necessary improvements.

L. R.

TORNABUONI (Giuseppe). **La Lepra nella Toscana Marittima.**—*Riforma Med.* 1925. Feb. 9. Vol. 41. No. 6. pp. 140-141.

Believing that the number of lepers was greater than the published records would indicate, the author made enquiries and investigations in Pisa, Liverna, Lucca, and in part of Spezia, and discovered 32 cases



(26 men and 6 women), of which only two had contracted the disease locally. Fourteen were of the nodular type, eight anaesthetic, and ten mixed. A great majority, 22 out of the 32, were found in the Province of Lucca. The local medical men, he states, do not understand the importance of adequate treatment. Statistics of the Minister of the Interior give 186 as the total number of lepers resident in Italy in September, 1923, but later figures bring the total to 230.

H. Harold Scott.

CEDERCREUTZ (Axel). **Spetälskans förekomst i Finland.** [The Occurrence of Leprosy in Finland.]—*Finska Läkaresällskapets Handlingar*. 1925. Feb. Vol. 67. pp. 143–153. With 2 maps & 3 curves.

In 1924 there were 57 known cases of leprosy in Finland—29 men and 28 women—corresponding to one leper in about 60,000 inhabitants. From 52 cases in 1893 the total rose to 67 in 1897 and 95 in 1904, but has now decreased considerably. Six of the men and eight of the women who were married had altogether 76 children, and amongst this progeny, some of whom had, of course, died, only one case of leprosy occurred, in a man now 48, who had had leprosy for five years. The majority of the cases occur in South West Finland. There has been a gradual rise in the age of the patients since 1897; in 1924 the mean age was 56·8 years; 70·2 per cent. of the lepers are now over 50 years of age. During the last 20 years the number of cases of nodular leprosy has considerably diminished in proportion to those of the anaesthetic variety. This also is a sign that the disease is steadily decreasing in Finland, as the nodular form is considered to be much the more contagious. One of the most important reasons why leprosy is on the decline in Finland is that a well-managed leper asylum was opened in Orivesi in 1904. Regarding infectivity, it is stated that four cases of leprosy occurred successively in the manageresses of a small hotel in the Åland Islands, and it is suggested that infection may be transferred from one generation to another through the furniture, with which in such cases women principally come in contact, and which has not been properly disinfected. Some control of the lepers living out of an asylum is advocated, and the appointment of an inspector, such as has existed in Norway with great benefit for several years, is suggested. It would be advisable to set aside a sum of money, beyond the cost of the Orivesi Asylum, to help the lepers, the majority of whom have only small means, and to make life in the asylum attractive to them so that fewer would be at large and a danger to the community. In this way Finland would in 20 years be as good as free from leprosy and would get rid of the slur of being numbered amongst the European countries in which autochthonous cases of leprosy occur.

E. E. Atkin.

MUIR (E.). **The Predisposing Causes of Leprosy.**—*Lancet*. 1925. Jan. 24. pp. 169–171. With 1 text fig. [6 refs.]

“There is probably no disease in which predisposing causes play a more important part than in leprosy.” This dictum is illustrated by striking examples of temporary or permanent predisposing causes, the former including attacks of febrile diseases, such as enteric, influenza,



or small-pox, the extra strain of pregnancy, the climacteric of puberty, or unfavourable diet, climate or surroundings; while among the latter are narrated syphilis, chronic bowel affections, protozoal fevers, including malaria and kala azar, or hookworm disease. One or more predisposing causes are commonly found in leprosy, and if present and removable the prognosis is improved greatly. On the other hand, in the more advanced stages of leprosy the onset of a specific fever may result in resolution and even disappearance of the leprosy lesions. Every one of ten advanced lepers developing kala azar improved rapidly as far as the leprosy was concerned, nodules and skin infiltration rapidly disappearing, and less marked improvement was noticed after dengue, malaria, cholera, dysentery and even pregnancy. Leprosy in the earlier increasing stages may be rendered worse by such reaction-producing diseases, but if they occur during the descending curve after leprosy has reached its height and the infection begun to decline, such complications may produce a beneficial effect, and in this stage treatment and exercise may be pushed with good results, most deformities being due to lack of vigorous treatment in the later stages of the disease.

L. R.

WOOD (D. J.). **Ocular Leprosy.**—*Brit. Jl. Ophthalm.* 1925. Jan. Vol. 9. No. 1. pp. 1-4. With 2 figs. in colour.

The writer has studied the eye lesions in lepers at Cape Town, which he finds to consist of progressive irido-cyclitis of an insidious nature, quite different from ordinary forms of iritis, and going on to occlusion of the pupil and opacity of the cornea, lens and vitreous, with shrinking of the eyeball. It begins with very small yellow lepromatous points on the iris, which becomes so rotten and brittle that iridectomy fails; but glaucoma never results. The lesions are best studied with the slit-lamp and the binocular microscope. The condition is illustrated by a small coloured plate showing small white rounded nodules raised above the surface. The cornea shows large numbers of white spots at variable depths. In a recent case the writer has injected subconjunctivally 1 per cent. sodium taurocholate added to 1 in 2,500 bichloride of mercury in 2 per cent. saline with definite improvement, such as he has never seen before.

L. R.

NEWSHOLME (Arthur). **A Note on the Causes of the Historical Reduction of Leprosy.**—*Proc. Internat. Conference on Health Problems in Trop. America.* 1924. pp. 791-795. [2 refs.] [United Fruit Company, Boston, Mass.]

In this short paper the well-known statistics of the reduction of leprosy in Norway by means of segregation of only a portion of the infected are quoted to show that complete isolation of all cases is not necessary in such a slightly infectious disease to bring about a great diminution of leprosy, and the lesson is applied to tuberculosis, the domiciliary and institutional treatment of which, especially the latter, may be expected to reduce the disease materially even if incomplete. The importance of the improved treatment of leprosy in leading to a more rapid diminution of the disease in the tropics is also emphasized.

L. R.



ROGERS (Leonard). **The Prophylaxis and Treatment of Leprosy, with Special Reference to Tropical Africa.**—*Kenya Med. Jl.* 1925. Feb. Vol. 1. No. 11. pp. 322–330. [3 refs.]

This paper deals with the subject on similar lines to other communications by the same writer. It lays stress on the importance of not attempting to enforce segregation in backward tropical areas, lest more harm should result from concealment of the early amenable cases, which it is most important to attract to the hospitals and dispensaries for treatment, than good from the isolation of a small proportion of the advanced cases, in which stage most of the nerve forms are not infective.

A. G. B.

DELAMARE. **Infantilisme lépreux.**—*Rev. française d'Endocrinologie.* 1923. July. No. 3. [Reprinted in *Etudes & Notes (1923).* *Chaire de Médecine exotique de la Faculté de Constantinople.* pp. 24–32. [3 refs.]

The writer describes two cases of leprosy in which the frequently recorded infantile characters persisted. The first was a young man of 17 years, whose sexual powers were still undeveloped, with advanced nodular leprosy, including a nodule in one testicle. He presented other signs of ill-development, but none of the characters due to defective thyroid. Thyroid gland treatment had no effect on him; his mind, though somewhat childish, was not otherwise deficient. The other was a mixed case of leprosy in a boy of 14, who was ill-developed for his age, with very little pubic or axillary hair and testicles the size of cherries, but not showing any leprous nodules.

L. R.

EYCKMANS (Robert). **Léprose pulmonaire pure dans un cas de lèpre tuberculeuse.**—*Bruxelles-Méd.* 1925. Mar. 29. Vol. 5. No. 22. pp. 733–736.

The occurrence of true leprous lung lesions has long been disputed, and requires animal inoculations for its proof even post mortem; the author does not know of any case in which it was proved during life. [E. MUIR has reported one.] He relates a case in which numerous acid-fast bacilli were found in the sputum of a female leper aged 54, who contracted the disease while sister in charge of leper children, in whose room she slept, the disease developing into well-marked nodular leprosy. After six years' progress she developed signs of febrile bronchopneumonia, the sputum showing very numerous acid-fast bacilli and granules resembling those of leprosy, with which two guineapigs were inoculated; one died after 18 days with a local abscess containing no bacilli, but some cocci; the other had a small local abscess, but recovered, and on being killed three months later was healthy. The patient recovered from the lung complication and her skin lesions also improved for a time.

L. R.



HUDELO & KOURILSKY (R.). **Un cas de lèpre mutilante autochtone.**—*Bull. Soc. Française de Dermat. et Syph.* 1925. Mar. No. 3. pp. 102–106. (Discussion pp. 106–107.)

This case of advanced nerve leprosy with loss of digits was found at Cotignac (Var), in mid France, in a boy aged 13, whose elder sister aged 17 was also a nerve case of leprosy, both cases apparently having been infected in France in a manner not traced. Professor JEANSELME in the discussion suggested that a somewhat similar case may have been infected through the husband, who had lived in leprosy countries although not apparently a leper himself; he was possibly a carrier.

L. R.

DELAMARE & DJÉMIL (Said). **Le calcanéum des lépreux.** [Société Anatomique 1923. June 30.]—*Etudes & Notes (1923). Chaire de Médecine exotique de la Faculté de Constantinople.* pp. 63–64.

Radiographic examination of eight lepers showed in several of them abnormalities in the os calcis, firstly, in the common form of patches of partial decalcification throwing lighter shadows, and secondly, as hypertrophy of the bone accompanied by partial decalcification.

L. R.

RODRIGUEZ (Jose). **Progress of Leprosy Treatment Work at Culion Leper Colony.**—*Jl. Philippine Islands Med. Assoc.* 1925. Feb. Vol. 5. No. 2. pp. 40–46.

This is the fourth six-monthly report on the treatment of advanced cases of leprosy at Culion up to March 31, 1924. Of 2,810 patients then under treatment 9·7 per cent. had become negative bacteriologically, 62 per cent. had improved, 15·6 per cent. were stationary, and 12·6 per cent. were worse, the 273 negatives not including 40 paroled or discharged during the past six months. From May 1921 to October 1924, 405 patients had become negative at Culion, doubtful cases being excluded, and about 300 more were considered to be negative by the treating physicians, but were being kept under further observation before discharge; remarkable results undreamed of in such advanced cases a decade ago. Table 1 summarizes the results of the last four reports and reveals progressively improved results.

TABLE 1.—GROSS RESULTS, ALL PROGRESS REPORTS.

Date of Progress Report.	Cases.	Improved.	Stationary.	Worse.
		Per cent.	Per cent.	Per cent.
September, 1922 ...	4,067	56·0	36·0	8·1
March, 1923 ...	4,035	53·3	36·0	10·7
September, 1923 ...	3,252	63·6	23·9	12·5
March, 1924 ...	2,810	71·7	15·6	12·6

The results of the different methods of administering the chaulmoogra oil derivatives are given in Table 2.



TABLE 2.—TOTAL IMPROVEMENT BY DRUGS.

Drugs.	Total treated	Improved.				Stationary.	Worse.
		Neg.	Mkd. & Mod.	Slight.	Total.		
Chaulmoogra ethyl esters, plain (C.E.)	161	14.3	26.1	21.6	62.0	21.1	16.8
Chaulmoogra ethyl esters with $\frac{1}{2}$ per cent. iodine (C.E.I.) ...	158	9.1	44.7	23.7	77.3	11.9	10.8
Chaulmoogra ethyl esters with 10 per cent. creosote (C.E. Cr.) ... ..	423	12.0	41.6	19.6	73.2	13.9	12.7
Chaulmoogra ethyl esters with $\frac{1}{2}$ per cent. iodine and 10 per cent. creosote (C.E. I.Cr.) ... ..	935	9.8	35.3	29.2	74.3	16.6	9.1
Mercado mixture ...	533	6.4	29.5	24.4	60.3	19.3	20.4
Total ... ..	2,810	9.7	37.0	25.0	71.7	15.6	12.6

The iodized ethyl esters continue to be best with 77.3 per cent. improved; the creosoted preparations are almost as good, and both are considerably better than the plain esters, which are much more irritating, or the Mercado chaulmoogra oil mixture intramuscularly, although the last is least irritating, and so preferable in cases complicated with nephritis. The plain esters are much more irritating than after the addition of iodine or creosote and have now been given up. The higher alcohol esters of chaulmoogra oil have been found to be less efficacious than the ethyl ones, and cod liver oil esters were too irritating. The dosages of the iodized esters advised is 2 to 5 cc. once a week intramuscularly, and creosoted esters or the Mercado mixture should be injected twice a week to get the best results.

Table 3 gives the results in cases of different duration; those under 5 or over 25 years show most improvement, the latter manifesting strong natural resistance.

TABLE 3.—DURATION OF DISEASE TO IMPROVEMENT.

Duration.		Cases.	Improved.	Stationary.	Worse or dead.
Years.			Per cent.	Per cent.	Per cent.
0 to 5	...	1,156	75.6	12.6	11.8
5 to 10	...	1,066	66.9	17.3	15.7
10 to 15	...	453	67.1	18.5	14.3
15 to 20	...	130	67.6	20.0	12.3
20 to 25	...	47	76.6	14.9	8.5

Table 4 shows that the effects of treatment improved with its duration, up to 32 months, and then remained about stationary, the lower figure between 18 and 24 months being due to a large number of unfavourable cases included in the early period of the treatment.



TABLE 4.—TOTAL TIME TREATED TO IMPROVEMENT.

Total time treated.		Cases.	Improved.	Stationary.	Worse.
Months.			Per cent.	Per cent.	Per cent.
To 6	...	24	29.2	58.3	12.5
6 to 21	...	92	50.0	23.9	26.1
12 to 18	...	314	70.6	17.5	11.8
18 to 24 <sup>a</sup>	...	1,344	61.3	21.2	17.4
24 to 32	...	749	85.4	8.3	6.3
32 to 35	...	302	84.3	6.0	9.6

<sup>a</sup> This large group includes many unfavourable cases placed under treatment at the beginning of the present campaign.

Lepra reactions in the form of fever or the appearance of new crops of skin lesions are regarded as evidence of depressed bodily resistance, which are to be avoided as far as possible, for of 3,249 patients studied from this point of view 644, or about 25 per cent., had one or more lepra reactions, and only 30 per cent. improved, 42 per cent. were stationary, and 31 per cent. became worse, against 2,605 without such reactions, with 45 per cent. improved, 42 per cent. stationary, and only 13 per cent. worse. Complaints of various kinds were made by 43 per cent. of the patients, cough, pain in the chest and fever being usually an indication of tubercular complication, which occurred in 158, or 45 per cent. of the 350 cases who dropped out of the treatment clinics, other causes being nephritis in 61, or 18 per cent., protracted lepra reactions in 54, or 15 per cent., leprotic involvement of the eyes in 18, or 5 per cent., and other complications in 59, or 17 per cent.

L. R.

WADE (H. W.), LARA (C. B.) & NICOLAS (C.). **Complaints of Patients under Antileprosy Treatment. I. Nature and Frequency in Cases receiving Chaulmoogra Ethyl Ester Preparations.**—*Philippine Jl. Sci.* 1924. Dec. Vol. 25. No. 6. pp. 661–691. [1 ref.]

——. **II. Comparison of Plain Chaulmoogra Ethyl Esters and Two Iodized Preparations.**—*Ibid.* pp. 693–710. [1 ref.]

——. **III. Comparison of Creosoted and Non-Creosoted Chaulmoogra Ethyl Ester Preparations.**—*Ibid.* 1925. Jan. Vol. 26. No. 1. pp. 21–45. [7 refs.]

i. An analysis has been made of the complaints made by over two thousand patients under treatment at Culion. These influence the dosage, etc., especially in the advanced cases met with in segregation colonies, so are of great practical importance. They numbered from 63 to 79 per cent. in the two main clinics, and fall into five groups: (1) Includes immediate symptoms, namely, coughing and choking, in 4.9 per cent., and dizziness in 1.5 per cent., causing only temporary and not very important disturbances; (2) local effects in the form of inflammation in 21.3 per cent., nearly always in the form of induration, only nine abscesses having occurred, most of which were sterile; (3) includes general symptoms, such as headache, malaise and simple fever recorded in 6.0, 6.4 and 9.3 per cent. respectively;



(4) chest pain and oppression and cough were noted in 15·0 and 19·1 per cent. respectively and are important complaints: haemoptysis was very rare, in spite of phthisis being a common complication of leprosy; (5) comprised reaction symptoms, either lepra fever or cutaneous eruptions without fever, met with in 14·3 per cent., and even inflammation in another 2·8 per cent., while rheumatic pains were noted in 1·8 per cent. A 6th group is formed by symptoms of nephritis, but as these were not systematically sought their percentage cannot be given; albumen was often found in the urine. Complaints were equally frequent in the two sexes, and were commonest in the highest age group of over 60 years; they were fewer with the larger doses owing to the amounts being reduced in those complaining. The writers are doubtful whether it is advisable to produce leprous reactions or not, but are inclined to consider it unnecessary and perhaps harmful to do so.

ii. This paper contains a careful analysis of 2,818 cases of leprosy to determine the best way of giving the ethyl chaulmoograte as a routine method of treatment, either by itself or with 2 per cent. or 0·5 per cent. of iodine in addition. The results show that the plain ester is more irritating to the tissues at the site of injection and also to the respiratory tract than iodized esters, thus seriously limiting the intensiveness of the dosage, and that they also caused more general symptoms. Of the two strengths of iodine the latter has distinct advantages, allowing of the use of larger doses, while it has no disadvantages as compared with the plain esters; the addition of 0·5 per cent. iodine is therefore the method of choice. The writer notes that in Honolulu 4 per cent. iodine was originally used, but has now been reduced to 1 per cent.; this is closely in accordance with their independent conclusion, which may therefore be safely accepted.

iii. This paper presents a further careful analysis of the complaints in 2,214 cases under different treatments by plain ethyl chaulmoograte, and with the addition of 0·5 per cent. iodine, 10 per cent. creosote, or both respectively, the cases having an average duration of 8·3 years. It was found that the addition of creosote had a very similar effect to iodine in reducing the local irritation and enabling the dosage to be pushed to more effective amounts. The difference between the two is not material, but, if anything, is in favour of iodine; lung symptoms were more frequent with the creosote; the choice therefore depended on therapeutic results not yet determined. The addition of both drugs gave rather less favourable results, and is not recommended, and it may be advisable to reduce the amount of the creosote; MUIR now uses only 4 per cent.

L. R.

GAVINO (Catalino) & TIETZE (Samuel). **Results obtained from the Various Treatments of Leprosy at San Lazaro Hospital, 1920-1924.**—*Jl. Philippine Islands Med. Assoc.* 1925. Feb. Vol. 5. No. 2. pp. 50-61.

During the past four years the various newer treatments have been carried out in the lepers admitted to this hospital under difficulties due to frequent transfers to Culion, but with a larger proportion of early cases than in that colony. No negative cases were obtained in the first six months to the end of 1920, but during 1921, of 46 cases treated by ROGERS' methods (sodium gynocardate and sodium



morrhuate) 9 had become negative, and of 366 on Dean's plain chaulmoogra esters 9 were negative, as well as 3 of 15 on Mercado's mixture. In 1922 iodized esters were used with the practical abolition of local abscesses, 20 negative cases resulting out of 444 patients, and 8 negatives of 34 treated by ROGERS' preparations; in 1924 iodized esters were nearly exclusively used with 72 negatives out of 503 treated. The main causes of 95 deaths in five years were lung disease, chiefly tuberculosis in 28, and kidney involvement in 13. From 1922 to 1924 82 patients were given certificates of parole, and 33 permanently joined the community as useful citizens, or 11 negative cases. They conclude:—

“When one is acquainted with the results of antileprotic treatments of fifteen or twenty years ago and compares them with the present number of negatives, such favourable progress is almost unbelievable. To us, who had seen a negative case for the first time ten years ago, it seemed miraculous that patients could be rescued from a hopeless disease—could be taken from a ‘living death’ and allowed to enjoy the pleasures of this world.”

L. R.

KEPPLER (A.). **Ueber Versuche mit subcutanen Chaulmoograöl- (aus *Taraktogenos Kurzii*) Injektionen.** [Experiments with Subcutaneous Injections of Chaulmoogra Oil (from *Taraktogenos kurzii*).]—*Klin. Woch.* 1925. Apr. 30. Vol. 4. No. 18. p. 879.

The experiments were made on dogs. For dilution various oils were chosen, partly with and partly without the addition of ether. While with other oils in the proportion 1 : 1 a clear solution could be obtained only by the addition of ether, arachis oil and chaulmoogra oil in the same proportion gave, without ether, a solution which at room temperature remained perfectly clear without any deposit after standing for several weeks on end. Omission of the ether renders the injections apparently quite painless to the animals. Injections of the dose quoted by HARPER for human beings, viz., 0.295 cc., administered at intervals of a week in various parts of the body had no effect whatever. The dogs retained their appetite and good digestion, and the urine remained free of albumin. Later, HARPER's double dose was given every third day at the same site (gluteal region). This, likewise, was without effect. With the idea of obtaining sterility of the oil, further experiments were made with the addition of 3 per cent. phenol to the mixture of arachis and chaulmoogra oils. These injections were likewise borne without any signs of pain or traces of albumin in the urine. After a few days, however, small superficially necrosing parts formed at the site of the injection which were then smoothly shed. In view of this symptom and the always present danger of phenol poisoning with a long continued treatment, it seems advisable to omit the phenol.

L. R.

KITS VAN HEIJNINGEN (A.). **Thymol-inspuitingen bij Lepra.** [Thymol Injections in Leprosy.]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1924. Vol. 64. No. 6. pp. 932-933.

The author administered during 7 months injections of thymol in alcohol (twice per week, 2 cc. of a 10-40 per cent. solution), or thymol in anise oil (once only 4-8 cc. of a 60 per cent. solution). He did not see



any clinical or bacteriological result from this treatment, but admits that the patients' subjective feelings have improved. He was not satisfied with it.

W. J. Bais.

HEINEMANN (H.). **Over behandeling der lepra met thymol.** [On the Thymol Treatment of Leprosy.]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1925. Vol. 65. No. 1. pp. 66-69. [2 refs.]

Heinemann used a preparation (Heyden 651a), containing 1 per cent. thymol in emulsion, for intravenous injections, every other day, beginning with 0.2 cc., 0.4 cc., 0.6 cc., and afterwards 0.8 cc., in which dose the medication is continued for a considerable time. The injections cause no pain. In 9 of a series of 12 patients treated there was a more or less noticeable improvement, but no real healing was established and in some cases relapses occurred.

W. J. Bais.

DELAMARE (G.). **Sur l'histoire de l'éparsénothérapie antilépreuse.**—*Progrès Méd.* 1925. Apr. 11. No. 15. pp. 535-538. With 1 chart in text. [14 refs.]

The writer summarizes the literature of this subject from the first roseate reports of the cure of leprosy in a few weeks of HASSON, of Alexandria, and of GOUGEROT (which were dealt with at the time in this *Bulletin*), and the favourable report of ROBINEAU at the Strasbourg conference, followed by unfavourable reports of MARCHOUX, JEANSELME and Delamare himself; and he shows by a chart that no successes have been reported since July, 1923, the earlier results being temporary improvement so often seen within a short time of using a new remedy, owing to insufficient allowance for the natural variations in the course of leprosy and especially marked improvement after a fresh exacerbation.

L. R.

DE SEQUEIRA (Luiz Artur Fontoura). **O antimónio no tratamento da lepra.**—*Revista Méd. de Angola.* (No. especial 1<sup>o</sup> Congresso de Med. Trop. da Africa Ocidental. Vol. 3. 3a, 4a e 5a Sessões.) 1923. Aug. No. 4. pp. 375-383.

The author gives an account of the results he has obtained with the use of antimony in leprosy. He employs "Oscol Stibium" for intramuscular and, occasionally, intravenous administration, and tartar emetic in 2 per cent. solution for the latter only. He states that antimony tends to accumulate in the skin and mucous membranes and thereby prevents the elimination of bacilli from the ulcerated surfaces. He gives brief details of 12 patients to whom injections were given on alternate days, starting with 0.04 gm. in 2 cc., and increasing by 1 cc. per diem till 0.1 gm. was given. This dose was not exceeded and the course consisted of 12 injections. After an interval of a few days a second and even a third series was given. Though considerable improvement resulted the author does not claim that antimony in any of its present forms will effect a cure, but he looks forward to the time when chemists will evolve a more efficacious preparation and one better tolerated by the patient.

H. Harold Scott.



LEVY (D. M.). **Unna's behandelingswijze der lepra.** [Unna's Treatment of Lepra.]—*Nederl. Tijdschr. v. Geneesk.* 1925. Mar. 28. 69th Year. 1st Half. No. 13. pp. 1422-1426.

The treatment is combined internal and external. The first consists of a chaulmoogra cure, the hydrolysed oil being taken in pills, containing 0.15 or (mitigated cure for very susceptible persons) 0.10 grams of the oil per pill—30 pills daily in 3 doses of 10 after each meal; it also includes a daily subcutaneous injection of "Durotan" (*i.e.*, a product of the esters of chaulmoogra oil, prepared by Beyersdorff, in Hamburg) in the morning, and an enema of 5 cc. oil in 50 grams of milk in the evening. For external treatment an ointment of yellow vaseline containing 5 per cent. pyrogallol, 5 per cent. ichthyol, and 2 per cent. salicylic acid is rubbed into the skin. This ointment acts as an irritant both to kidneys and skin and should therefore be applied with great care. Probably another ointment, Terpistrol, containing turpentine and said to have a specific action against the lepra bacilli, will prove, with further experience, to be more useful. (Some details are added as to local treatment of nodules of the skin, maculae and corneae, and cosmetic treatment of facial lesions.) The treatment is continued for two years in the hospital. The patients discharged are said to excrete no bacilli, to show no suspicious lesions of the mucosa, and to be in an excellent state of health. The internal treatment is continued at home for several years. Some patients show high fever and other reactions during this treatment. They undergo an unmixed ichthyol-cure (baths, pills, plasters).

N. H. Swellengrebel.

MONTERO (Aniceto). **La Bixa Orellana (Achiote) en el Tratamiento de la Lepra.**—*Rev. Méd. de Yucatan.* 1925. Feb. Vol. 13. No. 5. pp. 118-121. With 2 text figs.

The author has used preparations of Achiote, the common name for *Bixa orellana*, a plant closely allied to Chaulmoogra, for the treatment of leprosy. It is, however, somewhat poor in fats, various specimens yielding from 2.5 to 6 per cent. The dose used is not stated, but the author remarks that phagocytosis is stimulated at once, the bacteria disappear, and the clinical results are excellent; repeated examinations of the blood subsequently through a period of some years has failed to reveal bacteria and the disease has not recurred.

H. Harold Scott.

JACONO (I.). **L'albuminoreazione del muco nasale e l'autovaccino per la diagnosi precoce e la cura della lepra.**—*Riforma Med.* 1925. Feb. 2. Vol. 41. No. 5. p. 105.

This contribution consists of two distinct parts. In the first it is stated that although Hansen's bacillus cannot be found in some cases of leprosy in the nasal secretion albumen may be demonstrated. The author states that this sign is positive in 98 per cent. of nodular cases and in 86 per cent. of the anaesthetic. This does not quite harmonize with the succeeding sentence, in which it is said that if albumen is not present "leprosy can with certainty be excluded."

The second part is an adaptation to leprosy of the method previously recorded of treating lupus by a vaccine prepared from tuberculous glands. The author, having occasion to treat a patient of 70 years



suffering from generalized leprosy, which had proved resistant to other forms of treatment, excised a nodule from the arm under as aseptic conditions as possible, cut it into fragments, and triturated it in a mortar with normal saline, heated it to 60° C. for half-an-hour, and diluted it with phenol. 1 cc. of the final emulsion contained, roughly, 200 million lepra bacilli, though accurate enumeration was not possible owing to the clumping of the organism. The initial dose was 0.1 cc., and this was increased according to the clinical state. After three injections at intervals of a week there was notable improvement both subjectively and objectively. The size of the doses after the first is not mentioned.

H. Harold Scott.

TEDESCO (P. Atzeni) & MAZZOLENIS (U.). **Prime ricerche di capillariscopia nella Lepra.**—*Giorn. di Clin. Med.* 1925. Apr. 10. Vol. 6. No. 5. pp. 175–182. With 6 coloured figs on 1 plate.

The authors describe the conditions of the capillary vessels and loops and the changes which take place in them in the skin of leprosy patients, as seen by means of a special form of microscope, called a capillariscopes, devised by MÜLLER of Tübingen. A plate of six coloured figures is given which demonstrates the various appearances as seen by them. The plate is more descriptive than the text.

H. Harold Scott.

FAJARDO (Joaquin). **El bacilo de Hansen se encuentra en las deposiciones de los leprosy.**—*Repert. Med. y Cirug.* Bogotá. 1924. Dec. Vol. 16. No. 3. (No. 183.) pp. 117–124.

The author examined the faeces of a considerable number of leprosy and suspected leprosy for Hansen's bacillus in direct smears and after the use of antiformin and of alcohol and ether. He found them in the typical "bundle of cigars" arrangement in 100 per cent. of severe nodular forms, in 80 per cent. of those with few nodules, in 25 per cent. of the nervous cases, and in the macular period in 4 out of 10 patients examined. He gives in detail three cases in which examination of the nasal secretion was negative. In two the bacilli were readily found in the faeces. The third showed very slight indications, and would have been certified as healthy. Faecal examination revealed a few isolated bacilli in the first smear, and it was not until nine had been stained and examined that the typical "packets" were discovered.

H. Harold Scott.

STEVENSON (W. D. H.). **Complement Deviation and Globulin Content in the Blood of the Lepers. Part I. The Wassermann Reaction given by Lepers' Sera.**—*Indian Jl. Med. Res.* 1925. Jan. Vol. 12. No. 3. pp. 583–600. [1 ref.]

Some unpublished work done in Bombay in 1910–11 is recorded, the Hecht modification of the Wassermann test as used by FLEMING having been adopted, although its disadvantages are recognized; 10, 5 and 2½ per cent. antigen in normal saline was employed. 27 of



37 with the 10 per cent. solution gave completely positive results, 18 of 35 with 5 per cent., and 7 of 33 with  $2\frac{1}{2}$  per cent. strength, nodular reacting better than anaesthetic cases, as others have found. The globulin content of lepers' sera was also tested by NOGUCHI's method in lepers denying a syphilitic history, and the general average globulin content of lepers' bloods was found to be very high; much more so than with syphilitics.

L. R.

PINEDA (Eloy V.). [In English & Spanish.] **Differentiation of *Micobacterium Leprae* from the more common Acid-Fast Bacilli.** *Deferenciacion del micobacterium leprae de los bacilus acido resistentes mas comunes.*—*Jl. Philippine Islands Med. Assoc.* 1924. Oct. Vol. 4. No. 10. In English pp. 373-379. [4 refs.] In Spanish pp. 396-398.

In the Philippines segregation is only legal in leprosy cases proved positive by bacteriological examinations, which are thus of great importance. The writer recommends incising the lesions to a depth of two millimetres, after cleansing the skin with alcohol or gasoline, the latter for preference, and then scraping the side of the wound, and fixing and staining the slide for three minutes in cold carbolfuchsin and counterstaining with Gabbet's blue. [In Calcutta small pieces of skin are cut out with a fine curved scissors and the under surface smeared on a clean glass slide.] When very numerous acid-fast thin bacilli, especially if in bundles, and red granules are found, they are certainly lepra bacilli, smegma bacilli being often shorter and thicker and granule forms absent, while tubercule bacilli are very scanty. The different degrees of staining properties are not reliable distinguishing points.

L. R.

- i. ROGERS (Leonard). **The Treatment of Leprosy.**—*Proc. Internat. Conference on Health Problems in Trop. America.* 1924. pp. 772-790. [United Fruit Company, Boston, Mass.]
- ii. BAUJEAN (R.). **Essais de traitement de la lèpre à la Martinique.**—*Bull. Soc. Path. Exot.* 1925. Jan. 14. Vol. 18. No. 1. pp. 90-97.
- iii. DELAMARE (G.) & ACHITOUV. **Echec de l'éparséno dans une lèpre à Wassermann positif.**—*Bull. Acad. Méd.* 1925. Feb. 3. Year 89. 3rd Ser. Vol. 93. No. 5. pp. 141-145.
- iv. CAWSTON (F. G.). **Antimony Treatment of Leprosy.** [Correspondence.]—*S. African Med. Rec.* 1925. Feb. 28. Vol. 23. No. 4. p. 87.
- v. LAIGNEL-LAVASTINE. **Ostéopathies de morphologie lépreuse chez un tabétique. (Présentation du malade et des radiographies.)**—*Rev. Méd. et Hyg. Trop.* 1925. Mar.-Apr. Vol. 17. No. 2. pp. 64-72. With 5 text figs. [2 refs.]

i. Deals with the same material as the Croonian Lectures of 1924, already dealt with in this *Bulletin*.

ii. The writer records a trial of ethyl chaulmoogrates mainly in 20 lepers in Martinique with improvement of various degrees up to complete clearing up of the lesions. His results confirm those of other workers as to the value of the improved treatment.



iii. In this case of mixed nodular and nerve leprosy eparseno was pushed, so as to produce arsenical rash and other toxic symptoms, without in the least ameliorating the leprous condition.

iv. The writer quotes a letter from a missionary lady in Tanganyika stating that the ulcers in a number of lepers healed under the use of oscol stibium. No information is given as to how long the cases were under observation.

v. Perforating ulcer, with exfoliation of pieces of bone, and atrophy of the digital bones of the foot, as shown by X rays, in a tabetic patient are described; but the absence of anaesthesia or of leprous skin lesions allowed the latter disease to be excluded without difficulty.

L. R.

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BANCIU (A.). **Sur la survivance de la réagine lépreuse injectée chez les animaux.**—*C. R. Soc. Biol.* 1925. Feb. 27. Vol. 92. No. 7. pp. 529-530.

——. **Sur les propriétés acquises par le sérum des lapins inoculés avec un produit lépreux.**—*Ibid.* p. 531.

DORE (S. E.). **Case of Leprosy.**—*Proc. Roy. Soc. Med.* (Section of Dermat.). 1925. Feb. Vol. 18. No. 4. pp. 30-31.

RIECKE (Heinz-Gerhard). **Ueber einen Fall von Lepra tuberosa mit besonderer Berücksichtigung der Histopathologie.** [A Case of Lepra Tuberosa with Special Reference to the Histopathology.]—*Arch. f. Dermat. u. Syph.* 1925. Feb. 9. Vol. 148. No. 2. pp. 448-453. With 3 text figs. [6 refs.]





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